Amendments to the Claims:

Please amend Claims 6, 14, and 19 as indicated in the following listing of claims, which replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method for depositing a film on a substrate in a process chamber, the method comprising:

providing a first gaseous mixture to the process chamber;

generating a plasma from the first gaseous mixture with a plasma source disposed within the process chamber to deposit a first portion of the film on the substrate;

thereafter, flowing an etchant gas into the process chamber without terminating the plasma to etch part of the first portion of the film; and

thereafter, providing a second gaseous mixture to the process chamber without terminating the plasma to deposit a second portion of the film on the substrate.

- 2. (Original) The method recited in claim 1 further comprising applying an electrical bias to the substrate while flowing the etchant gas.
- 3. (Original) The method recited in claim 2 wherein the bias has a power density approximately between 0.9 W/cm² and 3.2 W/cm².
- 4. (Original) The method recited in claim 1 wherein the second gaseous mixture is substantially the same as the first gaseous mixture.
- 5. (Original) The method recited in claim 1 wherein the first and second gaseous mixtures each include a silicon-containing gas and an oxygen-containing gas, and wherein the etchant gas includes a fluorine-containing gas.
- 6. (Currently Amended) A method for depositing a film on a substrate in a process chamber, the method comprising:

providing a first gaseous mixture to the process chamber, the first gaseous mixture comprising a first deposition gas and an etchant gas; and

generating a plasma from the first gaseous mixture with a plasma coupling structure <u>disposed within the process chamber</u> to simultaneously deposit a first portion of the film on the substrate and etch the film, wherein the plasma includes poloidal ion flow along field lines substantially parallel to a surface interior to the process chamber, the surface and disposed to separate the plasma from the plasma coupling structure.

- 7. (Original) The method recited in claim 6 further comprising providing a second gaseous mixture to the process chamber without terminating the plasma, the second gaseous mixture comprising a second deposition gas, to deposit a second portion of the film.
- 8. (Original) The method recited in claim 6 further comprising applying an electrical bias to the substrate.
- 9. (Original) The method recited in claim 8 wherein the bias has a power density approximately between 0.9 W/cm² and 3.2 W/cm².
- 10. (Original) The method recited in claim 8 wherein the bias has a power density approximately between 0.9 W/cm² and 1.6 W/cm².
- 11. (Original) The method recited in claim 6 wherein the plasma is a high-density plasma.
- 12. (Original) The method recited in claim 6 wherein the second deposition gas is substantially the same as the first deposition gas.
- 13. (Original) The method recited in claim 6 wherein the first deposition gas includes a silicon-containing gas and an oxygen-containing gas, and wherein the etchant gas includes a fluorine-containing gas.

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14. (Withdrawn – Currently Amended) A computer-readable storage medium having a computer-readable program embodied therein for directing operation of a substrate processing system including a process chamber; a plasma coupling structure <u>disposed within the process chamber</u>; a substrate holder; and a gas delivery system configured to introduce gases into the process chamber, the computer-readable program including instructions for operating the substrate processing system to form a film on a substrate disposed in the process chamber in accordance with the following:

providing a first gaseous mixture to the process chamber, the first gaseous mixture comprising a first deposition gas and an etching gas;

generating a plasma from the first gaseous mixture with the plasma coupling structure to simultaneously deposit a first portion of the film on the substrate and etch the film, wherein the plasma includes poloidal ion flow along field lines substantially parallel to a surface interior to the process chamber, the surface and disposed to separate the plasma from the plasma coupling structure.

- 15. (Withdrawn) The computer-readable storage medium recited in claim 14, the computer-readable program further including instructions for applying an electrical bias to the substrate.
- 16. (Withdrawn) The computer-readable storage medium recited in claim 14, the computer-readable program further including instructions for providing a second gaseous mixture to the process chamber without terminating the plasma, the second gaseous mixture comprising a second deposition gas, to deposit a second portion of the film.
- 17. (Withdrawn) A computer-readable storage medium having a computer-readable program embodied therein for directing operation of a substrate processing system including a process chamber; a plasma generation system having a plasma source disposed within the process chamber; a substrate holder; and a gas delivery system configured to introduce gases into the process chamber, the computer-readable program including instructions for operating the substrate processing system to form a film on a substrate disposed in the process chamber in accordance with the following:

providing a first gaseous mixture to the process chamber;

generating a plasma from the first gaseous mixture with the plasma source; thereafter, flowing an etchant gas into the process chamber without terminating the plasma to etch part of the first portion of the film; and

thereafter, providing a second gaseous mixture to the process chamber without terminating the plasma to deposit a second portion of the film on the substrate.

- 18. (Withdrawn) The computer-readable storage medium recited in claim 17, the computer-readable program further including instructions for applying an electrical bias to the substrate while flowing the etchant gas.
- 19. (Withdrawn Currently Amended) A substrate processing system comprising:
 - a housing defining a process chamber;
- a plasma generating system operatively coupled to the process chamber and including a plasma coupling structure disposed within the process chamber;
 - a substrate holder configured to hold a substrate during substrate processing;
- a gas-delivery system configured to introduce gases into the process chamber, including sources for a silicon-containing gas, a fluorine-containing gas, and an oxygen-containing gas;
- a pressure-control system for maintaining a selected pressure within the process chamber;
- a controller for controlling the plasma generating system, the gas-delivery system, and the pressure-control system; and
- a memory coupled to the controller, the memory comprising a computer-readable medium having a computer-readable program embodied therein for directing operation of the substrate processing system, the computer-readable program including
- instructions to control the gas-delivery system to provide a first gaseous mixture to the process chamber, the first gaseous mixture comprising a first deposition gas that includes the silicon-containing gas and the oxygen-containing gas and an etchant gas that includes the fluorine-containing gas; and
- instructions to control the plasma generating system to generate a plasma from the first gaseous mixture to simultaneously deposit a first portion of the film on the

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substrate and etch the film, wherein the plasma includes poloidal ion flow along field lines substantially parallel to a surface interior to the process chamber, the surface and disposed to separate the plasma from the plasma coupling structure.

- 20. (Withdrawn) The substrate processing system recited in claim 19, the computer-readable program further including instructions for applying an electrical bias to the substrate.
- 21. (Withdrawn) The substrate processing system recited in claim 19, the computer-readable program further including instructions for providing a second gaseous mixture to the process chamber without terminating the plasma, the second gaseous mixture comprising a second deposition gas, to deposit a second portion of the film.
 - 22. (Withdrawn) A substrate processing system comprising: a housing defining a process chamber;
- a plasma generating system operatively coupled to the process chamber, the plasma generating system including a plasma source disposed within the process chamber;
 - a substrate holder configured to hold a substrate during substrate processing;
- a gas-delivery system configured to introduce gases into the process chamber, including sources for a silicon-containing gas, a fluorine-containing gas, and an oxygen-containing gas;
- a pressure-control system for maintaining a selected pressure within the process chamber;
- a controller for controlling the plasma generating system, the gas-delivery system, and the pressure-control system; and
- a memory coupled to the controller, the memory comprising a computer-readable medium having a computer-readable program embodied therein for directing operation of the substrate processing system, the computer-readable program including
- instructions to control the gas-delivery system to provide a first gaseous mixture to the process chamber;

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instructions to control the plasma generating system to generate a plasma from the first gaseous mixture with the plasma source to deposit a first portion of the film on the substrate;

instructions to control the gas-delivery system to flow, thereafter, an etchant gas into the process chamber without terminating the plasma to etch part of the first portion of the film; and

instructions to control the gas-delivery system to provide, thereafter, a second gaseous mixture to the process chamber without terminating the plasma to deposit a second portion of the film on the substrate.

23. (Withdrawn) The substrate processing system recited in claim 22, the computer-readable program further including instructions for applying an electrical bias to the substrate while flowing the etchant gas.